

# Sod Reuse Case Study

## A Win-Win for King County

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### Sod Reuse from Green Roof Replacement Saves Money, Beautifies County Landfill

#### Project Background

Metro Transit's North Base is an operations, maintenance, and bus parking facility in Shoreline, WA. Buses are primarily parked in the underground garage, which has a green sod roof. After 20 years, the roof of the bus garage has exceeded its normal design life. Water was beginning to contact the concrete roof and potentially compromise its structural integrity. The roof needed to be repaired. But this would not be a common roofing job. The roof also serves as a community park and at two acres, is largest green roof in King County.

The main purpose of the \$9 million project was to replace the deteriorating waterproofing membrane. The project also had ambitious recycling goals: to reuse two acres of sod and nearly 3000 tons of soil, and to recycle all other construction materials generated during the roof replacement.

#### Sod Reuse Between County Divisions

During project planning, the King County Solid Waste Project Manager, Lisa Williams, found a home for the project's two acres of sod in the County's own backyard, the King County Cedar Hills Regional Landfill. The sod was used to cover refuse, which helps the decomposition process in addition to making the land more visually appealing. As a side note, the County's landfill captures and recycles the gas created by decomposing garbage.

#### Win-Win Results

During summer and fall 2012, the sod was removed, soil removed and amended while the line was replaced. The soil has been placed and reseeded. The use of the North Base green roof sod at Cedar Hills was a win-win situation for all. It saved money and resources for the Metro Transit and Solid Waste Divisions. The contractor won by saving on disposal costs. The environment wins because sod recycling at the landfill helps speed the transition of the refuse to more natural uses. The public wins through reduced costs and an enhanced visual environment.



*Sod being removed from green roof for reuse*

#### Challenges

Metro's Design and Construction team knew that the project's goals would have multiple challenges. The roof had weight limitations which would require contractors to use smaller earth moving machines. Recycling and reusing materials can be more complicated and time consuming for contractors who are not used to such methods. Metro needed to take an active role to ensure contractor compliance with the project's goals. Other challenges were preventing sediment in stormwater runoff while the sod was being removed, and removing the sod efficiently.



*Sod strips being placed at Cedar Hills Landfill.*

#### Solutions

The solutions developed for this project also qualify for the County's **Sustainable Infrastructure Scorecard Credits**, as identified below and described on the reverse:

1. Planning ahead and using an Integrative Process allowed Metro to give contractors extra time in the schedule to remove the sod. **PD credit 1.0**
2. Ensuring the contractor's best management practices and TESC plan included managing storm-water runoff from the site. **WM credit 1.2**
3. Choosing a sub-contractor (Country Green) with a sod farm meant they had the expertise to efficiently salvage all the sod for reuse. **SM credit 8.0**

# A New Era of Construction

## Attention Contractors

The "Clean Bin" way of construction is quickly becoming the new way of working. Clean Bin encourages contractors to use two different bins, one for waste and one for all recyclable materials. This system enables construction crews to recycle without additional steps.



Clean Bin: [www.Greentools.us](http://www.Greentools.us)

The sod reuse project was special because it involved two divisions of King County coming together to recycle the sod and it benefited both sides of the transaction as well as the public and the environment. This may soon be the way that everyone does construction because there are so many positive reasons to recycle and reuse.

## Benefits of the Project

- ◆ Recycling saved money that would have been spent on disposing costs at the landfill.
- ◆ Reuse conserved natural resources.
- ◆ Reuse of the sod avoided occupying the limited landfill space in King County.
- ◆ Follows King County's Strategic Plan by reducing its environmental footprint.

## Lessons Learned

- ◆ Include time and budget in the contract for safe removal of sod.
- ◆ Always include details in contract specifications to ensure compliance by contractors to achieve the goals of the project.

*"Make King County a zero waste county by year 2030" - Cedar Hills Landfill Policy*

*"Recycling is now an industry norm"- Kyle Jordan, King County Project Engineer*

*"Green roofs are the future of the roofing business"- Isaiah Pullet, County Roofing Program Manager*

## Goals Achieved

- ◆ All old sod was reused at Cedar Hills Landfill.
- ◆ Contractors were happy with the outcome because it did not take any additional steps to recycle and it saved money.
- ◆ The project as a whole achieved the 85% recycling target.
- ◆ King County set an example for green roof replacements.
- ◆ The project gives contractors a blueprint on how to repair a green roof using recyclable materials.
- ◆ The project earned 49 scorecard credits (79%) qualifying the project for a platinum rating.

## Benefits

- ◆ The general contractor saved over \$16,000 by not paying disposal fees.
- ◆ Cedar Hills did not have to buy new sod to cover up their landfill areas.
- ◆ The contractors reduced their environmental footprint and received experience on the correct way to recycle sod for future projects.

## More Details

Location—Metro's North Base, 2160 N 163<sup>rd</sup> St, Shoreline, WA

Site size – 66,280 square feet

Project type— Repair of green roof waterproof membrane

Receiving facility: Cedar Hills Landfill: (206)-296-4466

## People Involved

King County Construction Managers:

John Wright, (206) 684-2891

Jack Schultz, (206) 684-2894

General Contractor:

Kassel & Associates Inc.

Matt Vernon, President, (425) 828-0236

Sod Removal Contractor:

Country Green Turf Farms

Steve Kalenius, (360) 465-1006

## Contacts

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